TROPICAL RAINFALL MEASURING MISSION

October 18, 1999 - October 24, 1999
DOY 291 - 297
Day of Mission 690 - 696

TRMM MISSION OPERATIONS

- TRMM is flying in the +X Forward direction as of 99-296, at 06:04:12z.
- The next Yaw maneuver is scheduled for November 9th (99-313).
- Delta-V maneuver #132 is scheduled for October 27th (99-300) using the LBS thrusters.
- The Beta angle range for 99-298 to 304 is 5.6° to 20.5°.

TRMM SUBSYSTEM OPERATIONS

Attitude Control System (ACS)

Delta-V maneuver #130 was successfully conducted on 99-292 at 14:48:32z and 15:34:21z, for durations of 48.00 and 26.25 seconds respectively, using the ISP thrusters. The off-modulation of the -Pitch thruster (#6) for burn 1 and 2 was 38.3% and 31.9% respectively (61.7% and 68.1% on time). The remaining fuel is 679.194 kg, and the final apogee and perigee height is 354.86 km x 347.55 km.

The daily TRMM EPV failed on 99-293, while performing an update the day after a Delta-V maneuver (ER #138). System table #85 was uplinked to expand the position limits to perform a successful update. The table was then returned to the original.

A Yaw maneuver from -X to +X was performed successfully on 99-296 at 06:04:12z.

Delta-V maneuver #131 was successfully conducted on 99-296 at 14:46:13z and 15:32:03z, for durations of 45.00 and 24.00 seconds respectively, using the LBS thrusters. The off-modulation of the -Yaw thruster (#1) for burn 1 was 8.1% (91.9% on time). The off-modulation of the +Pitch thruster (#2) for burn 1 and 2 was 21.7% and 25.5% respectively (78.3% and 74.5% on time). The remaining fuel is 677.555 kg, and the final apogee and perigee height is 354.69 km x 347.43 km.

Numerous negative acquisitions were experienced with the new TDRS Spare (TDRS 6) upon its activation on 99-291 (291-07:31z, 292-06:18z, and 293-06:43z - ER #137). A new vector was required but a new system table #86 version had to be loaded to disable the continuity comparison: this allowed the 7000 km difference from the position of the previous TDRS 1 (CCR #054). This was performed on 99-294, and the problem was resolved. The table was then returned to the original. This new table #86 version allows the FOT the ability to disable continuity for all TDRSs to allow quicker adjustments for these cases in the future.

Flight Data System (FDS)/Command & Data Handling (C&DH)

The frequency standard continues to drift in the negative direction. The frequency standard offset is currently set to x'76F' with a current drift rate of -3.57 µs/hr. The UTCF value remains 31535996.858045 sec with a current drift value of -712 µs.

A XS error occurred due to an invalid stream id from VIRS on 99-291 at 23:43:40z.

A Q-Channel restart occurred on 99-292 at 19:06:35z.

A TC flywheel event occurred on 99-294 at 09:19:36z.

An EDAC multi-bit error occurred on 99-296 at 18:52:21z.

Reaction Control Subsystem (RCS)

The RCS subsystem performed nominally during this period. See the ACS section for specific Delta-V information.

Power Subsystem

The Power subsystem performed nominally during this period.

Electrical Subsystem

The Electrical subsystem performed nominally during this period.

Thermal Subsystem

The Thermal subsystem performed nominally during this period.

Deployables Subsystem

The Deployables subsystem performed nominally during this period.

RF/Communications Subsystem

The RF/Communications subsystem performed nominally during this period.

Scheduled Mutual Interference was experienced on 99-291 from 03:53:55 - 04:00:05z (ER #139). Data was recovered on the next event.

A generic late acquisition (#40) occurred during the 99-295/20:00z event. All data was recovered.

Transponder 2 failed to lock for the 99-296/20:24z TDRS 171 event. There was no impact to operations.

SPACECRAFT INSTRUMENTS

CERES

CERES personnel are developing a plan for operating the instrument with the +15 V DAA anomaly. The CCR which involves creating and testing TSMs to monitor the CERES current is expected to be closed out by the end of the year.

LIS

LIS performed nominally during this time period. The FOT continues to trend other subsystem parameters to eliminate the possibility of an external cause of the heater switch anomaly, such as increased sensitivity to magnetic storms. The FOT will be working with MSFC to decide what further steps should be taken if the Heater Controller is malfunctioning.

PR

PR performed nominally during this time period. The list of Internal Calibration times over Australia in which PR was not radiating is listed below:

1999/291:06:54:41 - 06:59:43z
1999/291:14:59:46 - 15:01:40z
1999/292:13:47:40 - 13:49:49z
1999/293:06:05:51 - 06:10:33z
1999/293:12:36:26 - 12:38:40z
1999/294:12:59:08 - 13:01:16z
1999/295:05:17:27 - 05:19:15z
1999/295:11:47:35 - 11:49:48z
1999/296:04:07:56 - 04:09:46z
1999/296:12:10:00 - 12:12:08z
1999/297:10:58:41 - 11:00:53z

TMI

TMI performed nominally during this time period.

VIRS

VIRS performed nominally during this time period.

Solar Calibrations were performed for 120 seconds on 99-294 at 05:13:54z and 08:16:48z.

The operational heaters were toggled from the 15 W to the 8.5 W on 99-296 at 07:25z.

GROUND SYSTEM

All Y2K rollover testing has been completed on string 3, and system cleanup is being performed. String 3 operational readiness testing will begin after the cleanup and is expected to last for approximately 1-2 weeks. String 2 remains the prime Mission Planning string.

Event Reports

ER #137: Three TDS event problems: see ACS section.
ER #138: Day 293 EPV Continuity Failure: see ACS section.
ER #139: Unpredicted MI on 99-291: see RF section.

Generic Late Acquisition Reports (for TTRs 19639)

One Generic Late Acquisition occurred on 99-295 (#40). TTR #21502 was assigned due to the duration of the delay (late GCMR).

New Anomaly

No new Anomaly reports were written during this period.

Recurring Open Anomalies

No recurring anomalies were seen during this period.

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